NavMed 369

UNITED STATES NAVY

MEDICAL NEWS LETTER

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Vol. 30 Friday, 4 October 1957 No. 7

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HISTORICAL FUND
of the
NAVY MEDICAL DEPARTMENT

A committee has been formed with representation from the Medical Corps, Dental Corps, Medical Service Corps, Nurse Corps, and Hospital Corps for the purpose of creating a fund to be used for the collection and maintenence of items of historical interest to the Medical Department. Such items will include, but will not be limited to, portraits, memorials, etc., designed to perpetuate the memory of distinguished members of the Navy Medical Department. These memorials will be displayed in the Bureau of Medicine and Surgery and at the National Naval Medical Center. Medical Department officers, active and inactive, are invited to make small contributions to the fund. It is emphasized that all donations must be on a strictly voluntary basis. Funds received will be deposited in a Washington, D. C. bank to the credit of the Navy Medical Department Historical Fund, and will be expended only as approved by the Committee or its successor and for the objectives stated.

It is anticipated that an historical committee will be organized at each of our medical activities. If you desire to contribute please do so through your local historical committee or send your check direct, payable to Navy Medical Department Historical Fund, and mail to:

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Clinical Manifestations of Pulmonary Embolism

Pulmonary embolism is a common finding at necropsy. Nevertheless, it is regarded in many hospitals as an unusual disorder, infrequently considered in the differential diagnosis of cardiopulmonary diseases.

The frequent failure to recognize pulmonary embolism clinically can best be explained on the basis of widely held misconceptions regarding the prevalence of this disorder and the evidence necessary for its diagnosis.

If the diagnosis is considered only when all the classic clinical and laboratory features are demonstrable, most instances of embolism will go unrecognized. Where physicians are familiar with the variety of clinical, radiologic, and electrocardiographic manifestations which characterize pulmonary embolism, the frequency and importance of this disorder in modern practice become evident.

Excellent pathologic studies of embolism and infarction have been numerous, clinical investigations few. In clinical studies, moreover, the approach has varied according to the interests of the investigators. In some, pulmonary embolism has been regarded chiefly as a cardiovascular catastrophe; attention has been concentrated on the electrocardiographic criteria of diagnosis. In other studies, embolism has been regarded as a pulmonary disease and attention has been confined largely to the radiologic aspects of diagnosis. No data have been reported concerning the relative frequency of the respiratory and circulatory manifestations of pulmonary embolism in general hospital practice.

As a result of growing interest in this disease at the Graduate Hospital, University of Pennsylvania, the diagnosis has been made with increasing frequency in recent years. During the last 18 months, the entire house staff has cooperated in an effort to detect clinically instances of pulmonary embolism on all services of the hospital. The number recognized exceeded all anticipation and provided a unique opportunity to measure the relative frequency of the various respiratory, cardiovascular, abdominal, and neurologic guises which pulmonary embolism may assume. These observations are reported in the belief that greater familiarity with these varied manifestations and more widespread appreciation of the frequency of pulmonary embolism in modern hospital practice are essential if improved diagnosis of this important and common disease is to be achieved.

With the decline in frequency of infection in medicine and surgery, pulmonary embolism has increased in importance as a cause of illness and death to a degree that is not generally appreciated. Short, in an excellent study of the occurrence of pulmonary embolism in a general hospital in England, made the observation that pulmonary embolism was the most common acute pulmonary disease encountered between 1947 and 1950 at the Southmead Hospital in Bristol, exceeding in prevalence lobar pneumonia, bronchogenic carcinoma, and idiopathic pleurisy with effusion. A review of records at the Graduate Hospital in 1952, however, indicated that, despite

special interest in the diagnosis of pulmonary embolism, pneumonia and bronchogenic carcinoma far outnumbered pulmonary embolism.

In 1955, a study was instituted at the Graduate Hospital to ascertain the value of serum transaminase determinations as an aid to the differentiation of pulmonary embolism and myocardial infarction. It was quickly evident that the frequency of pulmonary embolism was far greater than was anticipated; a total of 90 cases were detected in the next 18 months representing an annual rate of 60. Comparison with the cases of pneumonia and bronchogenic carcinoma admitted to Graduate Hospital during the same 18-month interval demonstrates that pulmonary embolism is indeed the most common pulmonary disorder encountered in this hospital.

In an effort to improve the accuracy of detection of pulmonary embolism, a detailed analysis is presented of the syndromes, symptoms, signs, and radiographic, electrocardiographic, and laboratory findings in this series of 90 cases.

This reported experience is believed to be typical of that encountered in general hospitals. The occurrence of pulmonary embolism in 1.2% of medical admissions and 0.6% of surgical admissions corresponds well to observations made in other clinical studies and does not appear excessive when it it considered that the frequency of pulmonary embolism ranges from 10 to 25% in necropsy studies.

The authors' intensive effort to see all hospital patients with this diagnosis has had the effect of excluding distorted impressions due to overemphasis on cardiac disease or pulmonary disorder. It seems reasonable to consider that approximately 45% of pulmonary emboli present as pulmonary problems, and approximately 35% as cardiovascular problems; in other cases, symptoms may suggest abdominal or neurologic disorders.

The possibility of pulmonary embolism must be excluded in all patients thought to have pneumonia, pleurisy, myocardial infarction, angina, syncope, and other neurologic and abdominal crises. Physicians must become familiar with the varied clinical manifestations of nonfatal pulmonary embolism if subsequent—perhaps fatal—embolism is to be averted. The diagnosis can be made with considerable accuracy if attention is given to the history and physical examinations, including careful study of the extremities, and if there is informed interpretation of the electrocardiogram and chest x-ray films. Determination of serum (SGO-T) transaminase levels is helpful in the differentiation of pulmonary embolism and myocardial infarction.

From other studies, it is evident that nonfatal pulmonary embolism is often unrecognized. While the incidence of fatal embolism following surgery is similar from one hospital to another, there is variation among hospitals in the frequency with which sublethal embolism is diagnosed. In some hospitals, the diagnosis of nonfatal embolism is made less often than is the diagnosis of fatal embolism; in other hospitals, where there is special interest in the detection of the disease, the frequency of nonfatal embolism

is reported to be three to nine times that of fatal embolism. If, in any hospital, the nonfatal instances do not considerably outnumber the fatal cases, it must be assumed that the hospital staff is not adequately informed concerning the diagnosis of this disease.

Effective therapy for this disease is available. Antiembolic therapy may be medical (heparin intravenously or subcutaneously, Dicumarol, or other coumarins or phenindiones) or surgical (vena cava ligation, bilateral femoral vein ligation). Each method has advantages and disadvantages, but use of any of these methods is greatly to be preferred to inaction. Observations at the Mayo Clinic before the discovery of anticoagulants indicated that if a patient had a postoperative embolism and survived, there was a 30.5% chance of another embolism and an 18.3% chance of fatal embolism in the same convalescence. The 29 postoperative patients in the present study who had nonfatal embolism and were given anticoagulant therapy had no further emboli and, without exception, survived.

Unfortunately, the problem of pulmonary embolism will not be solved entirely by improved diagnosis. Most instances of massive pulmonary embolism give forewarning by minor emboli or by signs of phlebitis that can be detected by the alert clinician. Occasionally, however, fatal embolism occurs without warning and, rarely, fatal embolism occurs in a patient who is receiving what appears to be adequate therapy. Nor have prophylactic efforts been wholly successful. Neither bilateral femoral vein interruption nor administration of anticoagulants routinely to postoperative patients has proved consistently effective. Early ambulation has had many benefits, but it has not materially reduced the frequency of thrombo-embolism. This may be due in some instances to the fact that early ambulation has meant merely early sitting, a posture calculated to increase rather than diminish stasis in the leg veins. Wilkins and Stanton applied elastic stockings to all hospital patients in an effort to increase the linear velocity of blood flow in the deep veins by decreasing their caliber. A significant reduction in the occurrence of pulmonary embolism was achieved by this method and it would appear worthy of wide use in hospital patients. Attention is again called, however, to the large number of patients with thrombo-embolism in whom this method is not applicable, namely, the patients who develop venous thrombosis prior to hospitalization, often as the result of trivial trauma. More than a third of the authors' patients had thrombo-embolism before hospital admission.

The need for improved methods of diagnosis, prevention, and treatment of pulmonary embolism is evident. An essential first step is the recognition of the prevalence of this disorder and utilization of presently available techniques for diagnosis. (Israel, H. L., Goldstein, F., The Varied Clinical Manifestations of Pulmonary Embolism: Ann. Int. Med., 47: 202-222, August 1957)

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Primary Pulmonary Hypertension

Pulmonary hypertension has been the subject of considerable investigation since the introduction of cardiac catheterization through which its presence can be unequivocally established. An extensive and expanding literature exists on various facets of this interesting abnormality, but many aspects of its pathologic physiology and pathogenesis remain obscure. It is now generally appreciated that pulmonary hypertension may be a concomitant or a result of a wide variety of disorders. Many cases of so-called secondary pulmonary hypertension are commonly encountered in practically every catheterization laboratory. In most instances the associated or causative lesion can be identified either clinically or with the aid of cardiac catheterization.

However, there is a form of pulmonary hypertension in which one is unable to incriminate any obvious etiologic factor clinically even after careful scrutiny. Such cases have been considered by definition to represent instances of primary pulmonary hypertension. With the widespread application of cardiac catheterization, more and more cases of this type are being encountered and reported. Whether this increased incidence of primary pulmonary hypertension, as indicated by current statistics, is apparent or real can be established only after all these catheter and clinically diagnosed cases come to autopsy, because the appreciation of its former rarity was based on the application of critical pathologic criteria to autopsy material.

This report emphasizes the difficulties that may be encountered in ruling out certain causes of secondary pulmonary hypertension, even by present-day means. Experience with pulmonary hypertension, in general, suggests that, although it may be possible now to make a presumptive diagnosis of primary pulmonary hypertension during life, necropsy is still an essential part of the examination.

A table summarizes the clinical findings. All patients were young women. The duration of symptoms from onset to death ranged form 3-1/2 to 12 years. Exertional dyspnea of a progressive nature and fatigue were prominent symptoms in all. Syncope, cyanotic episodes, chest pain, cough, and edema were present less commonly and in varying combinations in each patient. Only one patient was detectably cyanotic, although three described cyanotic episodes; none had clubbing and two showed one or more signs of peripheral congestion. Of the two patients who had heart murmurs, in one it was a nonspecific precordial systolic murmur, while in the other two distinct diastolic murmurs were heard and confirmed by phonocardiogram. The middiastolic rumble at the apex was indistinguishable from that of mitral stenosis and prompted a diagnosis of Lutembacher's syndrome by several examiners. The second diastolic murmur down the left sternal border was consistent with pulmonic insufficiency. The vital capacities in three were only slightly subnormal and moderately reduced in the fourth. Hematocrits

were all slightly to moderately elevated. Twelve-lead electrocardiograms were available in only two patients and showed characteristic changes of right ventricular hypertrophy in the precordial leads, while in the two patients studied earlier, only standard limb leads were available which showed right axis deviation with ST-T changes in standard leads ii and iii suggesting right ventricular hypertrophy in addition. Roentgenographic examination revealed uniform prominence of the main pulmonary artery in all cases with typical hilar dance in one, cardiac enlargement in two, and right ventricular enlargement in all.

Primary pulmonary hypertension is a distinct clinicopathologic entity characterized by pulmonary arterial and right ventricular hypertension. Right ventricular hypertrophy is uniformly present and may, or may not, be accompanied by right ventricular failure. Hypertension is the result, hemodynamically, of excessive increase in pulmonary vascular resistance and may reflect itself in the pulmonary vessels by a variety of vascular lesions. The pathogenesis of the ultimate vascular lesions remains obscure. The clinical, hemodynamic, and pathologic features of four patients with this condition are presented. Clinical findings of cases reported in the literature, as well as in the present cases, show a remarkable uniformity which in the authors' interpretation is a reflection of pulmonary hypertension. Thus, it is difficult—if not impossible—on clinical grounds alone to differentiate this lesion from any of the multitude of conditions in which pulmonary hypertension is a secondary concomitant. Cardiac catheterization has provided valuable information on the pathophysiology of primary pulmonary hypertension and may be of great value in differential diagnosis, particularly in excluding congenital heart disease. The abnormal hemodynamic data that may be demonstrated by this technique, however, are not sufficiently specific to permit a conclusive diagnosis. The authors believe that a definitive diagnosis is possible only by necropsy, and even here, the exact mechanism may be difficult to define, although it is apparent that many of the lesions in the pulmonary arteries represent the effect of pulmonary hypertension. In the face of such diagnostic difficulties and because there is no satisfactory treatment for primary pulmonary hypertension, it is in the patient's best interest that the search for a lesion that can be treated should not be abandoned. (Kuida, H., et al., Primary Pulmonary Hypertension: Am. J. Med., XXIII: 166-181, August 1957)

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Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

Niemann-Pick Disease

Niemann-Pick disease—a variation of Gaucher's disease—is a condition involving a disturbance of metabolism affecting the spleen, liver, nodes, and marrow, and exhibiting the typical lipoid-filled foam cells seen in the adrenal, pancreas, thymus, and other tissues. The case described presents the picture outlined above as well as lipid histiomytosis of the phosphate type with chronic hepatosplenomegaly; it falls into the age limit usually characteristic of the disease which is primarily one of infancy. However, Pfandler described a few examples in older children and in two adults; Burne tells of a case in a fetus of full term. The disease is rare and usually fatal in infancy. According to Thannhauser, only about 70 cases had been reported up to 1947.

The disease in the case described, associated with complications of bronchial involvement and, finally, hypostatic pneumonia, proved fatal. Data are presented regarding the use of various types of therapy employed, such as cortisone, vitamin A, vitamin B_{12}, along with lipoproteins (choline and methionine), ACTH, and antibiotics (Mysteclin, streptomycin, Chloromycetin, Terramycin), in an attempt to halt or delay the progress of the disease. Although in the final analysis these did not prove fruitful under the conditions and duration of treatment prevailing in this case, it is hoped that the information presented may shed some light on the disease and encourage renewed efforts in an attempt to clarify its etiology and treatment.

The simultaneous application of electrophoretic studies with the administration of varying therapeutic agents has only recently been attempted in an effort to characterize specific diseases with the varying protein and lipoprotein components. These attempts, due to the fact that the serum proteins are nonstatic entities, have shown some promise in regard to such diseases as nephrosis, hypertension, diabetes, xanthomas, and atherosclerosis—to cite a few. However, limitations in the present knowledge of serum proteins and lipoproteins preclude the possibility of explaining all the variable changes that occur; the authors can only speculate and present existing data.

The administration of all therapy had little effect upon the general peripheral blood picture except for an apparent elevation of the white blood counts —probably due to antibody formation. The Na, K, Cl, and cholesterol values were not altered markedly; even the rise in urea can probably be explained on the basis of the clinical course of the disease rather than on the respective therapy used.

The failure of the lipoprotein fractions to be affected by the therapy used is of great significance, particularly because this is a disease of lipoidosis. Because these fractions are linked with the beta and gamma globulin fractions, it is difficult to explain their low levels initially and during stages in the therapy, with the very high levels of the beta and gamma lipoproteins. These fractions must be moved in order to change the progress

of the disease. Shifting of the protein fractions with the therapy used may be an indication of future possibilities, but their true significance is still unknown. However, because the lipoproteins were apparently unaffected, it must be assumed that factors other than the hormones of the adrenal cortex are involved in the disease. (Pansky, B., Lee, R., Niemann-Pick Disease in a Boy of 16 Months - Electrophoretic Study of Blood Serum Proteins and Lipoproteins Following Various Types of Therapy: J. Pediat., 51: 290-298, September 1957)

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Neuroblastoma

Neuroblastoma has long been recognized as one of the major hazards to life in childhood. Although this tumor is encountered occasionally in adults, it is predominantly a tumor of young children and is—next to leukemia—perhaps the most common malignant disease occurring in infancy and childhood. Until recent years, the prognosis in all cases of neuroblastoma was generally regarded as hopeless and interest in this condition was limited to studies of its pathology and natural history. With advances in surgery and roentgenology, there is now good reason for optimism in some cases and emphasis has been shifted to diagnosis and treatment.

The roentgenologic examination is an important clinical tool in the study of patients who may be harboring a neuroblastoma. A review of the world literature reveals that, although much has been written on this disease, few studies of its roentgenologic manifestations have been made. Because of the relative infrequency with which this tumor is encountered, only two or three of these studies have been based on any large number of personally observed cases. It seems opportune, therefore, for this presentation of findings in 32 cases.

Neuroblastomas are highly malignant tumors arising from the undifferentiated immature neural tissue of the developing sympathetic nervous system.

The ages of patients with neuroblastoma as reported in the literature have ranged from that of the unborn fetus to a person 76 years old. A few cases of fetal dystocia due to this tumor have been reported; in some, morcellation was required for delivery. Several instances have also been reported in which metastasis had occurred in the newborn. About 40 cases have been reported in adults so far as could be determined by the authors, but neuroblastoma is predominantly a tumor of infants and young children.

The youngest patient in the present series was 1 month old; the oldest, 70 years. The average age was 7.8 years and the median age was 3.5 years. Twenty-one of the 32 patients were less than 6 years of age. Two were adults.

Neuroblastoma affects males and females with equal frequency and there is no particular racial or familial tendency. Nineteen (59%) of the

patients in this series were males and 13 (41%) were females. Presenting symptoms were commonly abdominal pain, abdominal mass, fever, debility, anorexia, and bone pain. Less often, symptoms were referable to the thorax, eye, peripheral lymph nodes, subcutaneous nodules, or to the spinal cord. The average duration of symptoms from the time of onset until the patient was first seen by the authors was 4.3 months.

Although neuroblastomas may arise from sympathetic nervous tissue anywhere in the body, nearly half of all these tumors have their origin in the adrenal medulla. The most common sites of origin outside the adrenal are the retroperitoneal sympathetic ganglia in the abdomen, the pelvis, and the thorax. In a few reported cases, the primary site was in the spinal column, in the cervical sympathetic nerves, and in 4 adult cases reported by Ritter, the tumor had its origin in the small intestine. Isolated cases have been recorded in which the tumor arose in the celiac ganglion, the organ of Zuckerkandl and the ganglion nodosum of the vagus nerve. One neuroblastoma arising in the subcutaneous tissues of the thigh has been reported in the literature. In a number of reported cases, the lesion has originated in the eye or central nervous system. Most of these have probably been cases of retinoblastoma and medulloblastoma which some authors have classified with the neuroblastomas. In the adult, the primary tumor is usually extra adrenal.

Clinical records and pathologic material were reviewed on 32 histologically proved cases of neuroblastoma seen at the Mayo Clinic in the 10-year period through 1954. Roentgenograms of these patients were carefully studied in an attempt to establish criteria for the roentgenologic diagnosis of this disease.

Although the appearance of the primary tumor is not characteristic, the presence of an abdominal mass or a mass in the thoracic paravertebral region in a child should always suggest the diagnosis of neuroblastoma. An abdominal mass which contains calcium, particularly if the mass is in the adrenal region, will in all probability be a neuroblastoma. Calcification in the region of the mass was visible in the roentgenogram in 32% of cases studied in which the tumor was primary in the abdomen. Such calcification is rare in Wilms's tumor and in other conditions. Calcification is less commonly seen in primary intrathoracic neuroblastomas. Neuroblastomas arising in the thorax cannot be distinguished roentgenologically from other neurogenic tumors, any of which may show calcification.

Metastasis had occurred at the time of admission in 69% of the patients. Forty-four percent of the total group had skeletal metastasis. The site of the primary tumor and the distribution of metastatic lesions were not related; this observation further disproves the concept of the so-called Pepper and Hutchinson syndromes.

The skeletal lesions of neuroblastoma are often distinctive and the experienced roentgenologist frequently can make the diagnosis from the

appearance of bone changes alone. The important roentgenologic features of the skeletal lesions are: (1) marked tendency to a bilaterally symmetrical distribution of the lesions; (2) predominance of mixed destructive and proliferative bone changes; (3) frequent finding of cortical destruction and periosteal reaction; (4) occasional extension of the tumor process into the adjacent soft tissues; and (5) occasional presence of pathologic fractures.

The evidence in the roentgenogram of mixed osteolytic and osteoblastic metastatic lesions in the skull, separation of sutures due to increased intracranial pressure, and the sunburst type of periosteal reaction is considered pathognomonic of neuroblastoma.

The importance of adequate roentgenologic examination in all cases of suspected neuroblastoma is emphasized and certain minimal studies are suggested. Certain roentgenologic findings or combinations of findings are specific for neuroblastoma and in many instances the diagnosis can be made by the roentgenologist with a high degree of accuracy. (Kincaid, O. W., Hodgson, J. R., Dockerty, M. B., Neuroblastoma - A Roentgenologic and Pathologic Study: Am. J. Roentgenol., 78: 420-434, September 1957)

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Cesium 137

Early in 1955, a kilocurie cesium 137 teletherapy machine was installed in the Medical Division of the Oak Ridge Institute of Nuclear Studies. After much preliminary physical work involving radiation, protection surveys, and isodose plotting, the machine was made available for limited clinical trial. The present report deals with the early clinical impressions obtained in treating eleven patients.

Structural and physical particulars of this teletherapy device have been published elsewhere. Only a few remarks are made in this report concerning some points which bear directly on its clinical application.

The machine consists essentially of a shielded 1500-curie cesium 137 source that is capable of movement in four directions—tilt, vertical, horizontal, and circular. By means of a rather complex mechanical and electronic set-up, these movements can be coordinated to achieve a wide variety of rotational patterns. Heretofore, clinical use has been made only of arcs of rotation and of conical rotation; much further study of radiation distribution in the phantom is required before full advantage can be taken of the versatility of movement inherent in the machine.

The collimating system is a telescopic arrangement that, for stationary therapy, allows very short collimator-skin distances and a small penumbra area, with great ease in positioning of the patient. In rotational therapy, however, one can seldom allow a gap of less than 10 to 15 cm. between the face of the collimator and the body region being irradiated; this limitation is due to the irregular shape of the human body and the size of the treatment

table. Most patients were treated with a distance of 29 cm. between the collimator and the center of rotation and a distance of 60 cm. between the source and the center of rotation. The collimator is roughly circular (a 12-sided polygon). To obtain rectangular fields, a lead insert can be fitted into it to define any field shape to a maximum diameter of 12 cm. at a distance of 60 cm. from the source to the center of rotation.

With the present output of 15 r per minute at 60 cm., the daily irradiation time amounts to about 15 to 20 minutes. It is imperative that the patient remain absolutely still during treatment—a requirement which in itself presents a problem.

The eleven patients included two with adenoma of the pituitary and one each with epidermoid carcinoma of the middle ear, recurrent epidemoid carcinoma of the nasopharynx, carcinoma of the cervix, (Stage IV), carcinoma of the ovary, single spinal metastasis from carcinoma of the breast, carcinoma of the prostate, recurrent medulloblastoma of the cerebellum, multiple myeloma, and metastatic osteogenic sarcoma. The last patient admittedly was not suitable for any sort of radiation therapy, but was treated in an attempt to relieve the intense pain and in order to study the intensity of the skin and esophageal reactions. The patient with carcinoma of the prostate was in an advanced stage of the disease and was not responding to hormonal treatment.

As may be surmised, no effort was made to select patients on the basis of probable radiocurability; the only criteria for accepting them were that the tumor would be subject to treatment by radiation and, except in pelvic cases, not too large. In this latter group, the whole pelvis was irradiated by means of at least two opposing rotational fields.

Because less than one year has elapsed since these patients completed treatment, manifestly it is too early to appraise results in terms of final survival. When the dose was sufficient, the patients responded with a normal disappearance of the tumor or improvement of symptoms, or both, much as would be expected from the authors' experience with cobalt 60.

Some features of a cesium 137 rotating teletherapy machine are described. Attention is called to the fact that with the large source diameter there is an extensive penumbra area that limits the "concentrating" effects of a moving source or a multiportal arrangement. The early observations concerning the clinical response of tumors irradiated with simple arc and conical rotation and the normal tissue reactions indicate that this is a useful tool for clinical radiotherapy. Possibilities for complicated rotational patterns exist, but need further exploration before their usefulness can be ascertained. Comparing Co^{60} and Cs^{137} radiation, the authors have not observed any appreciable difference in local and systemic reactions. (Comas, F., Brucer, M., First Impressions of Therapy with Cesium 137: Radiology, 69: 231-234, August 1957)

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Ureteral Injuries in Pelvic Surgery

Injury to one or both ureters is a hazard which may occur during pelvic and abdominal surgery despite skill, experience, and awareness of the surgeon. A true incidence of such surgical accidents is unknown, for there is a natural reluctance to record such misadventures and others are never recognized. The risk of trauma to the ureter has increased with the applicability of extensive abdominal and pelvic dissections for cancer of neighboring organs; one may assume that this application will be of even greater concern as the boldness of the surgeon develops. A review of the literature reveals an approximate total of 1000 case records of unilateral and bilateral ureteral injuries. Most accidents have occurred during the course of gynecologic procedures, but colonic surgery has exacted a high toll. Extirpation of cervical carcinoma and extensions thereof accounted for the majority of recorded incidences of ureteral injury. Transabdominal and vaginal operative procedures have also been responsible for injuries when cancer was not the reason for performance of such surgery.

The high proportionate incidence of bilateral injuries may be explained, for these scarcely, if ever, escape notice, even though they may be misdiagnosed. Complete unilateral ligation, however, may cause insignificant symptoms and autonephrectomy results without clinical evidence of such a catastrophe.

The close proximity of the ureter to the cervix and to the uterine artery is a most obvious cause of ureteral injury, particularly when the normal relationships have been grossly disturbed. The common offenders in this respect have been intraligamentous fibroids, intraligamentous ovarian cysts, pelvic inflammatory disease, and infiltrating carcinoma.

During the course of radical hysterectomy with, and without, lymph node dissection, both ureters may be injured by clamping, cutting, and ligation of vessels, especially when excessive hemorrhage is present. The destruction of an adequate blood supply to the ureters is perhaps significant as well. Such injuries may be particular distressing, for the entire pelvic ureter may slough, rendering reparative attempt impossible.

Persistent loin tenderness following a pelvic surgical procedure should at once arouse the suspicion that the ureter has been injured. These symptoms may subside, however, without the development of a fistula or significant elevation of the body temperature, and the patient may be discharged without knowledge of the loss of one functioning kidney. In the absence of infection, the ureter can be completely ligated with minimal clinical disturbances. The important concern, however, is that such unrecognized renal destruction exposes the patient to grave consequences in the event the remaining kidney is eventually compromised.

Unexplained fever following a pelvic procedure should arouse the suspicion of an obstructed ureter. Urinalysis may be of little diagnostic value because pus cells will not appear in the urine in complete obstruction of the

ureter. The liberal use of antibiotics may maintain a sterile urine despite complete or partial ureteral obstruction. Ureteral injury rarely escapes attention when a urinary fistula develops. Leakage of urine from a fistula may appear at any time, although it is often delayed from 10 to 14 days. The site of injury is usually, but not always, easily located. Intravenous urography, instillation of colored solutions into the bladder, cystograms, cystoscopy, and retrograde pyelography are the usual methods of investigation. A complete urologic survey is essential because both a ureteral and a vesical fistula may coexist.

Complete obstruction of both ureters and consequent anuria precipitate an alarming situation. At times, however, the anuria may be erroneously attributed to lower nephron nephrosis secondary to a transfusion reaction. Urologic investigation will help in the differential diagnosis.

The authors believe that the incidence of injuries to the ureters would be greatly lowered if the anatomic status of the urinary tract is determined prior to operation, either by means of intravenous urography or retrograde pyelography. That the insertion of ureteral catheters will substantially reduce the risk has been demonstrated by Sisk. Accidents will be minimized if care is taken to identify the ureter before the uterine artery is clamped. The surgeon must also bear in mind the danger of occluding the ureter during the course of repairing the incision in the peritoneum. Immediate repair of the divided or injured ureter is advisable. This is best accomplished by insertion of a ureteral catheter to act as a splint, complemented by diversion of the urinary stream through the insertion of a rubber catheter at a point proximal to the anastomosis. If the injury to the ureter is close to the bladder, reimplantation of the ureter into the bladder with cystotomy is a procedure which is most likely to succeed. (Newman, H. R., Hotchkiss, R., Gordon, S., Ureteral Injuries in Pelvic Surgery: Am. J. Surg., 94: 421-426, September 1957)

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Fatal Reactions to Penicillin

Serious anaphylactic reactions to penicillin are an increasing clinical problem. According to estimate, more than 1000 deaths from such reactions have occurred in the United States alone. Practically all of these deaths resulted from immediate anaphylactic shock reactions to penicillin rather than from a delayed urticarial or serum-sickness type of reaction.

A more restrictive evaluation of the indications for penicillin therapy might be expected to decrease the number of serious reactions by reducing the number of persons who are exposed to the drug. For the remainder, however, there is no satisfactory method by which patients susceptible to anaphylactic reactions may be given penicillin safely.

Prevention of death from this cause, therefore, requires accurate identification of susceptible persons so that the drug may be withheld from them. The only near reliable criteria identifying such persons are a history of previous anaphylactic reaction to penicillin; an immediate positive reaction to a skin or eye test with penicillin, or both. Testing for sensitivity before penicillin administration is not routinely practiced for several reasons. The usual techniques of skin testing necessitate preparation of various dilutions of penicillin, require special handling, are considered inconvenient by physicians, are unavailable in many military situations, and have been reported to be unreliable for the detection of penicillin sensitivity.

In an attempt to make routine testing feasible, a simplified procedure was studied. Briefly, this consists of the application of drops of full-strength (300,000 units per ml.) procaine penicillin solution to a skin scratch and into a conjunctival sac. The test areas are observed after 15 minutes for itching, redness, edema, and skin wheal formation.

Two groups totaling 1365 adult subjects were tested. The first consisted of 567 subjects who were collected at random at an Army dispensary among patients, dispensary personnel, visitors, and associates. This was a standardization group and test results were not correlated with anaphylactic reactions to penicillin except as noted.

The second group consisted of 798 subjects who were to receive penicillin therapy at an Army hospital during January 1956 through March 1957. Also included were 7 patients who were brought to the hospital because of acute anaphylactic reactions to penicillin injected in nearby dispensaries and aid stations.

Of 1365 subjects interviewed, 64 (4.7%) described previous sensitivity reactions to penicillin. Of these, 48 (78%) had delayed urticarial reactions, 4 (6%) had serum-sickness type of reactions manifested by fever, urticaria, and joint inflammation, and 12 (18%) had anaphylactic collapse within minutes of a penicillin injection.

Seven of the patients with a history of recent anaphylactic reactions had been referred to the hospital from outside facilities and, therefore, were samples of an untested group. The actual proportion of history of anaphylactic reactions among the group was 5 : 57, or 8.7%, of penicillin sensitivity reactions.

The test procedure was found to be simple because the penicillin solution was mixed full strength in the usual manner for clinical use, and because special needles and syringes were not required (as they would have been for intracutaneous test procedures). For patients in the second group, a physician prescribed penicillin treatment, and a nurse or technician prepared the syringe of penicillin for injection. Drops of the solution were applied to the skin scratch and into the eye; the syringe of penicillin was then set aside until the 20-minute test period had elapsed. If both tests were negative and there was no other contraindication, the penicillin was injected

intramuscularly in the usual manner. The same penicillin solution was used for testing and for therapy.

Intramuscular injections of 600,000 units of procaine penicillin were administered to 778 patients in the second group immediately after they demonstrated negative test responses. One patient had a mild anaphylactic reaction a few minutes after the injection manifested by tachycardia, palpitation, dyspnea, and apprehension. Epinephrine, 0.30 ml. of a 1 : 1000 solution, was injected subcutaneously and recovery was prompt and uneventful. No immediate sensitivity reaction existed among the other 777 patients. Penicillin was not given to the remaining 20 patients, although more complete evaluation of test accuracy might thus have been possible, because they demonstrated positive test responses. In consideration of the close correlation of positive tests with recent anaphylactic reactions, it was decided not to risk further serious reactions.

During the clinical study, seven patients were tested who were brought to the hospital because of acute anaphylactic reactions to penicillin injected in nearby dispensaries and military aid stations. Each of them showed positive responses to skin scratch and eye tests for penicillin anaphylactic sensitivity 48 hours after the reaction, even though each was receiving full therapeutic doses of antihistamine agents.

Emphasis is given to this testing procedure as a means of identifying persons who are likely to have potentially fatal immediate anaphylactic sensitivity reactions to penicillin. Immediate test responses do not permit prediction of delayed nonfatal reactions to penicillin, such as urticaria and serum sickness.

The authors believe that the apparently greater accuracy of the skin scratch test observed during this study—in contrast to other reports—was achieved by the use of full-strength penicillin solutions. Further evidence for this is provided by Tuft, et al., who evaluated various techniques of skin testing for penicillin sensitivity, and concluded that the intracutaneous injection of 0.02 ml. of a solution containing 10,000 units per ml. is "The most satisfactory skin test method for the detection of penicillin allergy . . ." The data accompanying that report, however, indicate that persons found to be positive to such an intracutaneous test also had identical or stronger responses to 1 drop of full-strength penicillin solution (300,000 units per ml.) applied to a skin scratch.

Procaine and vehicle sensitivity were not considered separately in this study. To keep the test procedure simple and to obtain maximum information, the total therapeutic agent was used. A positive test response canceled the therapeutic injection and protected the patient from exposure to the total agent. The specific cause of acute anaphylactic shock is an academic consideration during the period of emergency treatment. Patients who are denied penicillin therapy under this system (approximately 1%) might later be tested by more complicated techniques under controlled conditions if necessary. The validity of this approach is supported by the fact that longer

acting penicillin preparations are more likely than aqueous crystallin penicillin to evoke sensitivity reactions. Thus, responses to tests using one preparation may not correlate with sensitivity reactions to another.

Confusion arising from skin wheals caused by dermatographia may be avoided by a second skin scratch as a control.

Several subjects showed positive eye tests but negative skin scratch tests. Therefore, simultaneous performance of both tests is recommended.

This method of testing for penicillin anaphylactic sensitivity by skin scratch and eye tests was found to be simple and safe; it is feasible in all situations where penicillin might be injected, military and civilian. The use of routine penicillin solution (300,000 units per ml.) and the lack of requirement for special equipment make the procedure convenient and generally available; also, it may be applied to other penicillin preparations.

Deaths due to penicillin sensitivity are caused by immediate anaphylactic reactions rather than be the delayed urticarial or serum-sickness type of reactions. Pretherapy identification of persons likely to have anaphylactic reactions would permit withholding of penicillin to prevent fatal reactions.

From the experience of this study, this procedure of testing for anaphylactic sensitivity should be applied routinely to all patients scheduled to receive penicillin before the first injection of a series. Patients who demonstrate an area of skin erythema greater than 1 cm. in diameter, itching, and wheal formation on the skin, or itching, redness, or edema of the eye should not be given penicillin in any form until further testing conclusively proves that they are sensitive to the vehicle and not to the penicillin. Approximately 1% of patients will be denied penicillin therapy under this program. (Major Vernon M. Smith, M.C., USA, Fatal Reactions to Penicillin - Evaluation of a Test For Sensitivity: New England J. Med., 257: 447-451, September 5, 1957)

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Symposium on Heart Disease

The Seventh Annual Symposium on Heart Disease, presented by the San Diego County Heart Association, will be held in the auditorium of the U.S. Naval Hospital, San Diego, Calif., on 8 October 1957. Guest speakers include Dr. William Dock, Palo Alto, Calif.; Dr. Donald B. Effler, Cleveland, Ohio; Dr. A. Rae Gilchrist, Royal Infirmary, Edinburgh, Scotland; and Dr. Maurice Sokolow, San Francisco, Calif.

A cordial invitation to attend the Symposium is extended to all medical officers. (USNH, San Diego, Calif.)

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"Congratulatory Letters"

The following letters and messages addressed to the Surgeon General of the Navy were received on the occasion of the 115th Anniversary of the Bureau of Medicine and Surgery:

"On behalf of the United States Marine Corps, I am privileged to extend greetings and best wishes to you and to the other members of the Navy Medical Corps upon the occasion of the 115th Anniversary of the founding of your great organization.

The distinguished record of the Navy Medical Corps throughout the years evokes the admiration of all Americans. It is a record of high professional competence, courage, unselfish devotion to duty, and compassionate service to humanity. We Marines hold all of you in high esteem and cherish the splendid relationship that exists between the Navy Medical Corps and the Marine Corps.

With warmest personal regards and every good wish for the continued success of your Corps for many anniversaries to come, I remain

Sincerely yours,

General Randolph McC. Pate, USMC
Commandant, U. S. Marine Corps
Washington 25, D. C.

The Atlantic Fleet Amphibious Force salutes the Bureau of Medicine and Surgery on the 115th Anniversary of its founding. August 31st is a memorable day in the history of Naval Medicine and Surgery. To you and all the fine people associated with you in the Naval Medical Corps we wish a happy birthday and continued growth, progress and success.

Vice Admiral L. S. Sabin, Jr. USN
Commander Amphibious Force
U. S. Atlantic Fleet
U. S. Naval Base
Norfolk 11, Va.

On behalf of the Bureau of Supplies and Accounts, I wish to extend my best wishes and heartiest congratulations to the officers, men and civilian employees of the Bureau of Medicine and Surgery on the occasion of the 115th Anniversary of the Bureau.

We, in BUSANDA, have enjoyed and benefited from our association with personnel of the Bureau of Medicine and Surgery. The cooperation we have received in our joint efforts is appreciated and I am sure that this same spirit will continue in our future dealings.

Rear Admiral R. J. Arnold, SC, USN
Bureau of Supplies and Accounts
Department of the Navy
Washington 25, D. C.

The Submarine Force Pacific Fleet is indeed proud and happy to congratulate you upon the observance of your one hundred and fifteenth anniversary. We join the entire Navy in taking this opportunity to express our gratification to you for the brilliant manner in which your department has so ably carried out its difficult role. The Department's advanced state of peacetime readiness, brought about in large measure by the many outstanding technological advances made, parallels the past history of remarkable achievements which your officers and men displayed during wartime conflicts. The Submarine Service has benefited immeasurably from our close association with the specialized members of your profession serving with our force. We salute you and your outstanding accomplishments on this proud occasion.

Rear Admiral E. W. Grenfell, USN
Commander Submarine Force, Pacific
c/o Fleet Post Office
San Francisco, Calif.

The military and civilian personnel of this command join me in extending sincere good wishes and felicitations to you and your staff on the occasion of the 115th anniversary of the Bureau of Medicine and Surgery.

It has been a pleasure for me as Executive Director of this new agency to work with your Bureau during the past year and the understanding assistance and cooperation received by this activity from all levels at all times during the planning and operational phases of MMSA have been exceptional.

We trust that the Bureau will continue to watch over the health and physical welfare of Navy personnel with the same conscientious care and effectiveness for many more years to come.

Rear Admiral W. L. Knickerbocker, SC, USN
Executive Director
Military Medical Supply Agency
84 Sands Street
Brooklyn 1, N. Y.

The Commanding Officer and Staff, U. S Naval Hospital, Charleston join in congratulations and best wishes to BUMED on your 115th anniversary. Your vigorous leadership and expert guidance continue to inspire all members of this command.

Captain Earl F. Evans, MC, USN
Commanding Officer
U. S Naval Hospital
Charleston, S. C."

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Foreign Officers Receiving Postgraduate Training

The Department of the Navy has extended an invitation to various nations to participate in a medical training program for Naval Medical officers. Thirty officers representing Chili, Cuba, Dominican Republic, Germany, Haiti, Italy, Japan, Korea, Mexico, Norway, Peru, Philippine Islands, Taiwan, Thailand, Turkey, and Viet Nam compose the group. The basic purpose of this program is to develop an environment of mutual understanding in matters relating to recent advances in global medicine, with particular reference to naval operations. The course will provide an opportunity for the participating officers to become acquainted with the medical problems of the countries represented, and will permit visualization of American military medicine at work in its natural setting.

Because medicine is intimately connected with the environment and the cultural background of the population, the participants will be provided an opportunity of making first hand contact with Americans both at work and at play. Field trips will include the United Nations, UNICEF, FAO, and the WHO in New York City, and numerous military and cultural centers throughout the Eastern Seaboard. The latest and best pedagogical techniques consisting of didactic lectures, films, demonstrations, and printed lecture media will be utilized.

The officers are assigned to Postgraduate Training of two months' duration at the Naval Medical School, National Naval Medical Center, Bethesda, Md., which commenced, September 16, 1957. Ten of these officers will attend the Senior Medical Management Course and twenty will attend the Preventive Medicine Course.

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Course in Nuclear Medicine

A course in the Clinical Application of Radioisotopes will be offered at the U. S Naval Medical School, National Naval Medical Center, Bethesda, Md., on 20 January 1958. This will be full time formal type training given by the staff of the Department of Nuclear Medicine, U. S. Naval Medical School and the Radioisotope Laboratory, U. S Naval Hospital.

Approximately thirty guest lectures by recognized authorities in the field of Nuclear Medicine will supplement the staff teaching program. Field trips to nearby civilian and government medical centers are planned, including Atomic Energy Commission facilities.

The course is 15 weeks in length. It is designed to fulfill isotope requirements of all specialty boards as well as to qualify the participants for licensure by the U. S. Atomic Energy Commission for the Clinical Application of Radioisotopes. Applications from Medical officers in all major specialties are desired. At least 12 months of approved residency training in a specialty is required. Temporary additional duty orders with per diem, if applicable, will be issued to accepted applicants.

Applications may be made to Chief, Bureau of Medicine and Surgery, Code 316, Navy Department, Washington 25, D. C. (NavMedSchool)

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IN MEMORIAM

RADM Charles P. Kindleberger MC USN (Ret)	28 August 1957
CAPT Robert A. Cooper MC USN	8 September 1957
CAPT Spencer L. Higgins MC USN (Ret)	7 August 1957
CDR Thomas E. Kent MSC USN (Ret)	1 July 1957
CDR Jeremiah V. Crews MSC USN (Ret)	2 August 1957
LCDR John W. Baker MC USN (Ret)	7 August 1957
LCDR John Buckley MC USN (Ret)	4 March 1957
LCDR Thomas G. Foster, Jr. MC USN (Ret)	5 May 1957
LT Mary E. Marsino NC USN (Ret)	3 August 1957
LTJG Curtis H. Vaughn MSC USN (Ret)	22 July 1957

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From the Note Book

1. Rear Admiral B. W. Hogan, Surgeon General of the Navy, participated as a member of the House of Delegates in the meeting of the House of Delegates of the American Hospital Association held in Atlantic City, N. J., September 30, 1957. (TIO, BuMed)

2. Commodore Lars Troell, Surgeon General of the Royal Swedish Navy, accompanied by Lieutenant Evert Schildt, MC., also of the Royal Swedish Navy, visited the Surgeon General of the Navy, September 16, 1957. Commodore Troell and Lieutenant Schildt spent several days at the Bureau of Medicine and Surgery where they were briefed on naval medicine in general by various Divisions of the Bureau. (TIO, BuMed)

3. Vice Admiral J. L. Holloway, Jr., Chief of Naval Personnel, in a letter to the Surgeon General of the Navy, stated his appreciation for services rendered during the past 10 years by Mr. W. V. Charter, Director of the Medical Statistics Division of the Bureau of Medicine and Surgery. (TIO, BuMed)

4. Five Indonesian dentists who are participating in the University Level Staff Training Program under the auspices of the International Cooperation Administration were guests recently of the Commanding Officer of the U. S. Naval Dental School and his staff. The dentists are in the United States for one-year courses in specialties and expect to join the faculties of professional schools on their return to Indonesia. (TIO, BuMed)

5. The James C. Kimbrough Urological Seminar will be held at Walter Reed Army Medical Center, 25, 26, and 27 November 1957. An outstanding program is planned which will include subjects in the basic and allied sciences as well as clinical urology. (WRARMC)

6. Approximately 800 graduate nurses will receive advanced training this year in the second year of a Public Health Service program to help overcome a shortage of nurses qualified for teaching and administrative positions. Grants totaling $3 million have been made to 60 schools of nursing and public health throughout the country. These institutions in turn will award traineeships to qualified nurses interested in teaching positions in schools of nursing, or in supervisory and administrative posts in hospital nursing services and public health agencies. (PHS, HEW)

7. The Department of Labor and the Department of Health, Education, and Welfare, in cooperation with the Department of Defense, are sponsoring a National Stay-in-School Campaign to encourage school-age youngsters to leave summer jobs and return to school. The campaign is designed to combat

a very dangerous 40% drop-out prior to graduation of boys and girls enrolled in high school. (OIR News Letter, July 1957)

8. Data are presented which indicate increased post-transfusion survival of erythrocytes in human blood collected, stored, and infused in plastic equipment as compared with blood processed in conventional glass containers. The clinical experience of 4 years' use of blood stored in plastic bags demonstrates low rates of bacterial contamination and pyrogenic reaction. (Surg. Gynec. & Obst., September 1957; C. W. Walter, M. D., et al.)

9. In this article emphasis is placed on the detection and significance of a positive serologic test for syphilis. It is a strange turn in medical events in which a test used for the detection of a formerly prevalent disease may become the means of uncovering the presence of certain unsuspected or latent diseases, often of far more serious consequence than syphilis itself. (GP, September 1957; H. Beerman, M. D.)

10. Lumbar aortography and demonstration of the distal branches of the aorta have become accepted and commonplace procedures. This article presents primarily some of those aspects of the roentgen anatomy demonstrated by aortography and arteriography which are important in deciding upon and planning the surgical approach to the arteriosclerotic aorta and its lower branches. The material is drawn from a series of 600 aortograms and arteriograms. (Radiology, August 1957; W. R. Eyler, M. D.)

11. Marked polydipsia and polyuria in the absence of glycosuria are rarely encountered in clinical practice. Once diabetes mellitus has been excluded, the differential diagnosis generally rests between diabetes insipidus and psychogenic polydipsia. (Am. J. Med., August 1957; J. F. Dingman, M. D., et al.)

12. This article describes the disability and mortality in patients who were followed from 2 to 5 years after mitral commissurotomy. (Ann. Int. Med., August 1957; G. A. Logan, M. D., et al.)

13. Fifty cases of primary fibrosarcoma of bone are reviewed. The tumors occurred most commonly among patients in the 4th decade of life. It affected long tubular bones in 34 of 50 cases. (Am. J. Surg., September 1957; J. J. McLeod, M. D., et al.)

14. A report of experience with p-di-(2-chloroethyl)-aminophenyl butyric acid (CB 1348) and B-Naphthyl-dichlorethylamine (cloronaftina or R-48) administered to patients with Hodgkin's disease is presented in Blood, August 1957; A. Rottino, M. D.)

Recent Research Projects

Naval Medical Research Institute, NNMC, Bethesda, Md.

1. Summaries of Research: 1 July - 31 December 1956.
2. Reversible Association Processes of Globular Proteins X: Quantitative Aspects of the Complexing of Human Serum Albumin with Rabbit Antibodies in the Antigen Excess Region. NM 000 018.06.38, 9 January 1957.
3. Electrolyte Theory and the Donnan Membrane Equilibrium. NM 000 018 .06.56, 4 February 1957.
4. An Experimental Revaluation of the Problem of Small Vessel Replacement. NM 007 081.10.25, 4 February 1957.
5. The Toxicology of Cellulube 220. IV. A Batch Uniformity Test for Toxicity. MN 005 054.01.03, 15 February 1957.
6. Caries Susceptibility in the NMRI Strain of Osborne-Mendel Rats. NM 008 012.01.15, 15 February 1957.
7. Anticholinesterasic-Like Action of Deca Chlorocholinium Dichloride on Isolated Ileal Strips from Rabbit and Guinea Pig. NM 000 018.12.11, 22 March 1957.
8. Microstructure of the Human Tooth. A. Investigation of the Dentino-Enamel Junction by Polarization, Fluorescence, Microradiographic, and Ultraviolet Absorption Techniques. NM 008 012.05.01, 1 April 1957.
9. Potassium, Sodium, and Glutamate Content of Guinea Pig Brain Following Exposure to Oxygen at High Pressure. NM 004 005.09.04, 1 April 1957.
10. Response of Oral Tissues to Grafts of Ethylenediamine Treated Heterogenous Bone. NM 004 006.09.02, 3 May 1957.
11. Relation of Adrenal Weight to Social Rank in Mice. NM 004 005.08.08, 8 May 1957.
12. Titration and Spectrophotometric Studies upon Polyadenylic Acid. NM 02 01 00.00.01, 20 June 1957.
13. Summaries of Research: 1 January - 30 June 1957.

Naval Medical Research Unit No. 3, Cairo, Egypt.

1. Results of the NAMRU-3 Southeastern Egypt Expedition, 1954. 3. Argas Brumpti Neumann, 1907, Ornithodoros Foleyi Parrot, 1928 (Ixodoidea, Argasidae) in Egypt. NM 005 050.39.48, February 1957.
2. Results of the NAMRU-3 Southeastern Egypt Expedition, 1954. 4. Fleas (Siphonaptera). NM 005 050.39.50, February 1957.
3. Bat Ticks of the Genus Argas (Ixodoidea, Argasidae) 3. The Subgenus Carios and a Redescription of A. (c.) Vespertillionis (Latreille, 1802) NM 005 050.29.33, March 1957.
4. Ticks (Ixodoidea) of the Yemen. NM 005 050.39.58, March 1957.
5. Observations on Egyptian Hyalomma Ticks (Ixodoidea, Ixodidae). 2. Parasitism of Migrating Birds by Immature H. Rufipes Koch, 1844. NM 005 050.39.54, March 1957.

6. Observations on Egyptian Hyalomma Ticks (Ixodoidea, Ixodidae) 3. Infestation of Greater Berbils, Especially by Immature H. Impelatatum S & S. 1930. NM 005 050.39.55, March 1957.

Naval Dental Research Facility, Great Lakes, Ill.

1. Histologic Effects of Silver Nitrate on Human Dentin and Pulp. NM 75.01.27, Subtask #3, November 1956.

Naval Air Development Center, Johnsville, Pa.

1. Effects of External Pressurization upon the Cardiovascular System in Dogs. I. Physiological Aspects. NM 11 01 12.1, Report No. 3, 23 July 1957.

Naval School of Aviation Medicine, NAS, Pensacola, Fla.

1. Cosmic Ray Dosage During the Giant Solar Flare of February 23, 1956. NM 12 01 11, Subtask #1, Report No. 14, 11 June 1957.

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BUMED NOTICE 6810 13 September 1957

From: Chief, Bureau of Medicine and Surgery
To: Ships and Stations Having Medical Department Personnel Regularly Assigned

Subj: Issuance of nonstandard ophthalmic lenses and frames; information concerning

Ref: (a) BuMedInst 6810.1A
(b) ManMed, Article 25-7

This notice provides information and recommended practices concerning the use of supporting statements on spectacle orders requesting the issuance of nonstandard ophthalmic lenses and frames.

The Bureau has been advised of numerous instances in which the statements of justification or circumstances necessitating the issuance of nonstandard ophthalmic lenses and frames as required in reference (a) are seemingly at variance with the provisions of reference (b).

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DENTAL SECTION

Letter from Chief of the Dental Division to All Navy Dental Personnel

"This letter is to express my sincere appreciation to all of you who, on August 22, so wholeheartedly supported the commemoration of the Forty-Fifth Anniversary of the founding of the U. S. Navy Dental Corps. Many excellent reports of your successful affairs have reached this Bureau through copies of ships' and stations' publications and civilian newspapers. The articles in these publications were uniformly in good taste and can result only in enhanced public respect for our profession and the Navy. I am confident that the birthday celebration contributed significantly to the solidarity and esprit de corps of our organization.

It has been the cusom in previous years for the Chief of the Dental Division to send individual letters of appreciation to the heads of dental facilities who sponsored commemorative activities on the anniversary of the Dental Corps. I am happy to report that the ceremonies, receptions, and news articles were so numerous this year that individual recognition is not practicable. I am pleased that your enthusiastic support in recognizing the anniversary of our Corps has made it necessary for me to use an open letter to express to you this 'Well Done.' "

/s/ R. W. MALONE

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Hazards in Use of Copper Tubing

During a recent inspection of a dental facility, it was found that copper tubing was being used to transmit Acetylene gas. Because of the hazards involved in installations of this type, regulations of the National Fire Protective Association and the National Board of Fire Underwriters prohibit the use of unalloyed copper in contact with Acetylene except in a

blow pipe or torch. The transmission of Acetylene by copper tubing may cause the formation of copper acetylide which is a sensitive and explosive material. Although the amount of acetylide formed may be small, it may act as a trigger to cause a violent explosion of the acetylene.

The use of unalloyed copper is allowable only in a blow pipe or torch because the heat at the tip is sufficient to prevent acetylide formation. Stainless steel or steel are the recommended materials for tubing or pipe to be used for the transmission of Acetylene gas.

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Radiographic Film with Higher Speed Emulsion

Attention is invited to a higher speed dental radiographic film now available in the Armed Services Medical Stock List. This film was adopted to provide a suitable item for use with long cone techniques. The film's high speed emulsion permits reduction of exposures to one-third to one-quarter the time required for intermediate speed film and, therefore, minimizes the radiation hazard to patients and operating personnel. The life of x-ray tubeheads is prolonged by reducing the load on the x-ray tube.

Nomenclature for procurement:

FSN 6525-663-1558	Film, Dental Radiographic, 1-1/4 by 1-5/8 inches, 150S: Single film packets, dispenser type package. Speed group 2.0; suitable for use in long cone techniques.

This item will supplement FSN 6525-601-5010 Film, Dental Radiographic, 1-1/4 by 1-5/8 inches, 144S.

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Policy

The U.S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

RESERVE SECTION

Sixty-Fourth Annual Convention of the Association of Military Surgeons

The Annual Convention of the Association of Military Surgeons will be conducted at the Hotel Statler in Washington, D. C. 28, 29, and 30 October 1957.

The Chief of Naval Personnel has authorized the awarding of one retirement point credit to eligible inactive Naval Reserve Medical Department officers for attendance at the three daily meetings provided such attendance is registered with the authorized military representative present.

Information concerning the program may be obtained by writing the Program Chairman, Colonel Robert C. Kimberly MC National Guard, Maryland 802 Cathedral St., Baltimore 1, Md. Information concerning hotel reservations may be obtained by writing Mr. Charles Osborne, Hotel Statler, 16th and K Sts., N. W., Washington 13, D. C.

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New Identification Cards for Reservists and Regulars

All naval and military personnel, active and inactive will soon be carrying new identification cards. Effective immediately, the Armed Forces Identification Card, Form DD 2 - Active (the green card), will be issued only to members of the Armed Forces serving on extended active duty.

A new ID card, the Uniformed Services Identification and Privilege Card, Form DD 1173 (buff-colored), has been prescribed for issue to all other members of the Armed Forces including Naval Reserve personnel and retired Reservists.

This change in policy simplifies the identification card system and insures that no member will be denied benefits because of lack of proper identification.

If you are not serving on active duty you must exchange any ID cards you now possess for the new card. Members of drilling units will be issued the new card by their commanding officers.

All other inactive Reservists, including retired Reservists and those in the active status pool or on the Inactive Status List, should obtain the new card as follows:

1. Obtain an application blank (Form DD 1171) for the new ID card at any naval or military installation.

2. Complete the application. Mail it to the command having custody of your service record for verification of status and certification. The application, properly certified, will be returned to you.

3. Present your certified application, together with your old ID card, to any naval or military activity issuing the ID cards.

Reservists on inactive duty have until 31 December 1958 to make the change. On and after 1 January 1959, the Armed Forces Identification Card, Form DD 2 - Inactive, will no longer be valid. (Naval Reservist, August 1957)

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PREVENTIVE MEDICINE SECTION

Control of Bilharziasis

The operation of an ever increasing number of irrigation schemes in various parts of the world and the use of inexpensive and effective molluscicides have increased the need to find practical measures to control bilharziasis. Destruction of the intermediate host would appear to be a logical line of approach, but it has become apparent, in part, from the limited success of snail control, that comparatively little is known about the relationship between the ecology of the snails and the mechanism of infection.

The WHO Study Group on the Ecology of Intermediate Snail Hosts of Bilharziasis has recently published a report of practical suggestions for control measures and problems involved.

Physical Factors

All snails which transmit bilharziasis show a high degree of tolerance to variation in the temperature of their habitat. They are able to withstand for a considerable time temperatures ranging from a little above freezing point to well above 37° C.

The effect of annual range of temperature on the length of the breeding season is of importance. In certain areas, the period of time during which

the water is warm enough to permit oviposition, development and growth is only sufficient for the production of one generation. In latitudes where the warm season is longer, several generations may be produced or breeding may even continue all the year round. Thus, Bulinus truncatus in northern Iraq produces only a single generation annually, while in central and southern Iraq and in Egypt it produces two or more generations each year. Australorbis glabratus in northeast Brazil continues to breed all the year round. A similar situation exists with regard to those species of Oncomelania which produce only one generation annually in the northern part of their range, but breed all the year round in the warm southern areas.

In the past, it was thought that snail hosts of bilharziasis were unable to live in complete darkness. However, recently Bulinus truncatus and Australorbis glabratus were bred and maintained in the laboratory in complete darkness over a period of at least 5 months. Also, field observations in Egypt, Rhodesia, and South Africa have revealed breeding colonies in covered aqueducts or reservoirs in almost total darkness.

Light may have an indispensable stimulating action on the sex glands of the snails. If this theory were proved to be true, covering the irrigation channels or piping the irrigation water could be considered as a practical measure of control.

Water movement in a habitat is beneficial to the snails because it promotes oxygenation of the medium. However, violent waves are generally deleterious to intermediate hosts of bilharziasis, as is fast-running water which appears to prevent the establishment of breeding colonies, especially if the water is heavily laden with silt or other suspended particles.

The life cycle of the intermediate snail hosts is greatly affected by seasonal and climatic conditions. Floods appear to be uniformly harmful to snail populations, because they have all the deleterious effects of rapid current velocity with the addition, in some cases, of a marked drop in temperature which is sufficient to interrupt breeding. On the other hand, flooding due to rainfall may disperse the snails and lead to their establishment in habitats where they did not previously occur.

Experiments carried out both in nature and in the laboratory have shown that certain strains of snails resist desiccation for long periods. Survival out of water for periods ranging from 3 to 11 months has frequently been observed. For this reason, desiccation as a method of control can only be effective under certain conditions.

Chemical Factors.

Chemical factors also greatly influence snail populations. The mineral content of the water, for example, has a profound effect on the snails. The total amount of dissolved solids in the water is of less importance than the proportion of constituent salts. Considerable difference in tolerance exists between the different species. Thus, Australorbis glabratus is not inhibited by the sodium chloride content of the water until the concentration reaches 6000

parts per million, whereas Bulinus truncatus is seriously incommoded before the value of 4000 parts per million is reached. In addition to salts used as molluscicides, certain mineral salts, such as barium, nickel, and zinc are toxic to snails.

Biological Factors

Although it seems doubtful that natural events and predators could ever be used as effective means of control, these factors may be helpful in reducing snail populations. Animals which have been recognized as being of possible value in the control of snails which transmit bilharziasis are: water rats; certain species of ducks; turtles (some species feed almost exclusively on snails in nature); salamanders; clawed toads; certain species of fish (e.g., Gambusia supp.); many species of aquatic insects; crustaceans (e.g., fresh-water crabs of the Potamidae family); carnivorous leeches of various species; certain ciliates; and other snails.

Although there is no doubt that snails are affected by epidemic diseases of viral and bacterial origin, remarkably little information on the parasites and diseases of snails is available and further research should be undertaken.

The feeding habits of various species of intermediate hosts may be important in determining the form in which stomach poisons can be applied. For instance, it has been observed that Tropicorbis centrimetralis tends to feed on the river bed, while Oncomelania spp. feed on moist soil above the water level and on microorganisms found on living and dead vegetation.

Control Measures

Although much remains to be learned about the complex relationships existing between molluscicides, the snails, and the environment, the following details were considered by the study group to be useful in snail control:

1. Information concerning the characteristics of the snail life cycles indicates that:

   a. It may be most favorable to treat after reflooding of a dried habitat, because reproduction of pulmonate vectors is generally rapid at that time, the population is small, and the snails may be immature.

   b. The great reproductive potential of the pulmonate vectors means that treatments may have to be very frequent and that repeated checks at close intervals may have to be made to insure effective control.

   c. Not all current molluscicides kill the eggs at usual concentrations, and repetition of treatment may, therefore, be necessary.

   d. Since Oncomelania is more susceptible to molluscicides when it is in its young aquatic phase, treatment should be made when reproduction is active.

2. Information concerning snail habits and characteristics indicates that:

a. In the case of snails resistant to drying, treatment at other than maximum water level may miss some snails, and stream clearance should not precede treatment because it removes snails from exposure but may not kill them.

b. In the case of snails not resistant to drying, the water level at the time of treatment is not so important, and the application may be made before the water has reached its maximum level with a consequent saving of chemical.

c. Burial of snails in soft mud may protect them against some chemical agents.

d. Snails may avoid the action of molluscicide by emerging from the water or penetrating into the mud, and the ecological conditions under which such escape reactions may take place need further study.

3. Information concerning conditions of habitats indicates that:

a. Substances in the water may affect the action of the chemical. For example, organic matter binds copper, and silt interferes with the molluscicidal action of both copper and sodium pentachlorophenate.

b. Vegetation and irregular margins may impede the distribution of soluble chemicals.

c. Because flowing water will carry away the chemicals, further amounts will have to be added over a period of time, and the concentration during that period will have to be measured.

Observations on the establishment of breeding colonies of gulinid and planorbid snails in irrigation systems in various parts of the world have led to the development of some engineering control measures which may be expected to limit or reduce snail populations, such as clearing of weeds, covering of channels or piping of irrigation water, and drainage and lining of irrigation canals.

The development of ecological research has now reached a point at which extensive field studies can no longer be efficiently carried out by individuals and cooperation between specialists in different scientific disciplines is desirable. (Control of Bilharziasis: Chronicle WHO, 11: 159-162, May 1957)

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Advanced Training in Disease Vector and Economic Pest Prevention and Control

The sixth class of this three weeks' training course, given once each quarter by the U. S. Navy Disease Vector Control Center, Naval Air Station, Jacksonville, Fla., has been rescheduled to begin on 21 October 1957, instead of on 18 November 1957, as previously announced. Convening dates for calendar year 1958 courses have been changed to the third Monday of January, April, July, and October.

For full details of this training course, see the original announcement which appeared in the Medical News Letter, Vol. 28, No. 2, dated 20 July 1956 and a subsequent announcement in Vol. 29, No. 11, dated 7 June 1957.

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Necrotic Spider Bite

Current medical references used by practicing physicians list the black widow, Latrodectus mactans, and other species of Latrodectus as the only spiders occurring in the United States that may inflict bites serious enough to require medical treatment. Physicians practicing in rural areas in the Midwest have realized for some time that other species occasionally bite and cause conditions which, although generally less severe than those occasioned by the bite of L. mactans, are serious enough to require attention. In some cases, the animal inflicting the bite has not been observed by the patient and the attending physician has attributed the condition to "insect bite."

With the exception of certain species of Reduviidae, there are no midwestern Hexapoda known to inflict severe injury by bite to human beings. Several clinical cases of spider bite in Missouri by a "brown spider" are available. Usually, the spider became entangled in the patient's clothing and bit when it was crushed or removed.

First symptoms varied, presumably with the relative amount of venom injected. A thick wheal usually formed with necrosis of tissues at the immediate site of the punctures made by the chelicerae. The area soon turned violaceous, then black and dry, and sloughed in a few days or a week leaving a deep sharply defined granular area surrounded by the raised edges of healthy tissue. The sloughed area—frequently quite large—may persist for several weeks. Healing took place slowly. In a few patients, systemic disturbance of a general nature was indicated by a rash resembling that of scarlet fever.

In these cases, spiders inflicting such necrotizing venom have not been available for identification. In a single case, a specimen of Loxosceles reclusus was circumstantially incriminated.

A striking similarity between these necrotic spider-inflicted wounds in Missouri and the "gangrenous spot" or cutaneous arachnoidism of Chile, Uruguay, and other South American countries is evident. Symptoms in patients bitten by L. laeta are similar to those in patients observed in Missouri.

Because Loxosceles reclusus was circumstantially incriminated in human necrosis before the South American literature was reviewed, and because it belongs in the same genus, it is not unduly presumptive for L. reclusus to be tentatively assigned the same relationship with cutaneous arachnoidism in Missouri as L. laeta bears to that condition in South America.

Experiments are currently under way involving Loxosceles reclusus and laboratory animals. Preliminary results indicate that the venom of L. reclusus is a powerful necrotizing agent capable of causing cutaenous necrosis in mammals. (Atkins, J.A., Wingo, C.W. Soderman, W.A., Probable Cause of Necrotic Spider Bite in the Midwest: Science, 126: 73, 12 July 1957)

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Poliomyelitis Vaccine Needs Moving

Since the beginning of fiscal year 1958, the rate of issue of poliomyelitis vaccine has slowed down. At current rate of issue, a 9-months' supply is on hand or due in medical supply depots. This threatens the loss of much of the vaccine since the potency dating period is only 6 months and no extension is possible.

A national publicity campaign is to get under way this fall, emphasizing the need for continued immunization programs. This will serve to back up Navy promoted programs.

If not already in existence, the following programs should be instituted by all Navy activities:

1. Routine immunization of all children as a regular part of pediatric immunizations.
2. Routine immunization of all pregnant women beginning at first visit.
3. Routine immunization of all members of families proceeding overseas.
4. Periodic clinics and publicity programs to continue immunization of all dependent children.
5. Vaccine to be offered routinely to all military personnel when other booster immunizations are being given with particular recommendation being made for its use in the case of fathers with young children in the home.

Funds available for poliomyelitis vaccine during this fiscal year will not permit any program for mandatory immunization of military personnel. Neither will they permit the mounting of a major program for voluntary immunization of all military personnel at all Navy and Marine Corps activities. However, if the above groups accept immunization when recommended, it will permit the Navy to make a major attack on poliomyelitis, keep vaccine moving and tie in with the national programs.

Funds have again been requested in the fiscal year 1959 budget to permit mandatory immunization of all new accessions to the Navy and Marine Corps and for all military personnel and dependents proceeding overseas. If obtained, the majority of military personnel and dependents should be immunized by 30 June 1959. (Communicable Disease Branch, Preventive Medicine Division, Bureau of Medicine and Surgery)

Accuracy of the Confirmatory Diagnosis of Tuberculosis

In a correlation of the diagnostic procedures in tuberculosis with 1295 patients, a proven diagnosis of active tuberculosis was established in 629 cases. The confirmatory diagnosis of tuberculosis is based upon a positive skin test, recovery of tubercle bacilli from sputum, gastric content, discharging material from fistula, pleural effusion, urine, and tissue pathology.

Analysis of the skin test, utilizing 1-1000 O. T., revealed that positive reactors varied from a low of 18% in the 1- to 14-year old group to a high of 82% in the 45 to 64-year old group. The 65-year and older group had a lower incidence of positive skin tests than the group from 36 to 65. It has been suggested that this might be due to a decrease of skin sensitivity in the older age group. The accuracy of the properly performed tuberculin skin test (beginning with 1-1000 O. T. and followed by 1-100 O. T.), if negative with both dilutions, is so great in ruling out tuberculosis that it becomes the keystone in the diagnosis of the disease, because 59% of patients with roentgenographic changes sufficient (in miniature films) to arouse suspicion of tuberculosis have negative Mantoux tests. It has been shown that the absence of a positive skin test rules out tuberculosis in 97% of cases. The 3% exceptions are mainly (1) children in whom tuberculosis is developing, but who have not had the 42 to 120 days necessary to develop a positive skin test, and (2) moribund patients in whom diagnosis can usually be made by positive sputum findings if the sputum is examined. A positive Mantoux text in a child less than 6 years of age indicates active primary infection. A positive Mantoux test in a patient over 6 years of age indicates a prior primary infection, and if disease is present anywhere in the body, tuberculosis must be ruled out.

The main errors in skin testing are: (1) use of out-dated material, (2) failure to refrigerate the material after mixing, (3) use of a too dilute solution (less than 1-1000 O. T.), and (4) not injecting the material intradermally.

In order to recover tubercle bacilli from lesions, repeat specimens cultured on Lowenstein's and Petragnani's media are required, because the bacilli may not be present in the sputum or gastric cultures every day and may grow better in one medium than another even though both support growth in the positive control. Petragnani's medium gives a higher percentage of positive results and a lower percentage of contamination. A single positive smear or culture is sufficient reason to hospitalize a patient and to begin treatment.

Factors influencing the recovery of tubercle bacilli are: (1) total number of tubercle bacilli are found in the specimen; (2) the digestant material kills 80% of the viable tubercle bacilli; (3) pH above or below 7 may rapidly kill the tubercle bacilli; (4) temperature changes of specimens above or below 30° C. decrease the number of viable tubercle bacilli; (5) byproducts of

vitamin C in urine are bactericidal; and (6) antibiotics inhibit the growth of tubercle bacilli on culture media. Contamination occurs most frequently in outpatient specimens, drainage from sinus tracts, and aspirated fluids.

Using three specimens cultured on two different media, tubercle bacilli were recovered in 22.5% of primary cases, 94% of minimal tuberculosis cases, 95% of moderately advanced pulmonary tuberculosis cases, and 95% of far advanced tuberculosis cases. The erythrocyte sedimentation rate was of no value in the diagnosis of active tuberculosis, because it was found to be normal in over one-fourth of the patients with positive cultures.

Thirty of 189 (15.8%) surgical and autopsy specimens from patients with one or more positive cultures were returned without a pathologic diagnosis of tuberculosis.

Since the advent of combined chemotherapy, all tuberculosis deaths in this study have occurred in patients with advanced disease, either pulmonary or extra-pulmonary. There were no deaths from primary or minimal pulmonary disease.

Stress is given to the value of the short-term workup with three gastric specimens that can be cultured immediately by qualified technicians using culture media that grow tubercle bacilli.

While tissue examination is of great value in extra-pulmonary tuberculosis, it is of less value in diagnosing moderately and far advanced disease and of no value in minimal and primary disease because these patients do not require resection nor do they die of the disease. In summary, active pulmonary tuberculosis is a clinical diagnosis which is best substantiated by the recovery of tubercle bacilli from the lesion. (Allen, A. R., Harmon, R. W. J., Klacsan, L. J., Stewart, K. M., Accuracy of the Confirmatory Diagnosis of Tuberculosis, Am. J. Med., XXIII: 904-914, June 1957)

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The Yutampo Burn

This article presents information concerning the yutampo burn, a condition causing considerable loss of time from duty among military personnel in Japan. A knowledge of the existence of this type of burn should alert medical personnel to take measures to prevent these burns and to treat them expeditiously in order to restore the patient to duty as quickly as possible. Interest in the problem of yutampo burns was aroused by the relatively large number of cases seen at the Naval Hospital, Yokosuka, and by the difficulty encountered in healing the burn ulcer. Of still greater military interest, is the already noted fact that patient time loss from yutampo burns is excessive. This account is concerned strictly with medical facts and matters and has nothing to do with moral issues which may, or may not, be associated with the cause of these burns.

The yutampo burn is a thermal burn produced by contact with a heat source known as the yutampo, an oriental bed warmer best described as a metallic or earthenware hot water bottle. A cloth wrapping or jacket is ordinarily placed about the warmer to protect the sleeper from direct contact with the hot metal. A burn from this source may be called an "hibachi pot burn" and by other less accurate names by military personnel. As might be anticipated, yutampo burns are most commonly observed on the legs or feet, rarely elsewhere on the body. They are usually single, but several patients have shown multiple burns on the same or opposite lower extremity.

The small but deep burns present upon examination leave no doubt that prolonged contact between the patient and the heat source at 212° F. or less is necessary to cause the injury. Obviously, if the patient's reflexes were functional at the time, such a deep burn would not have resulted. Thus, alcohol is the usual auxiliary agent in yutampo burns making it possible for the partially anesthetized sleeper to lie in contact with the hot agent unaware that he is being burned.

When first seen, the burn usually appears as a blister or as an eschar. That the lesion is third-degree may soon become apparent. Ulceration develops and infection supervenes. Burns of first and second degree—i. e., those not progressing to ulceration—should not require hospitalization.

The initial burn, with the ulcer which may result, is usually small and oval or elliptical in shape with an average size of 2.5 cm. by 3.5 cm. This small size is due to the curved contour of the yutampo which limits surface contact with the skin. The typical ulcer shows little tendency to heal without treatment, and such patients should always be seen by a medical officer. The ulcer shows deep inflammation and/or infection. Skin margins are rolled or elevated. The ulcer plateau is covered with a purulent or grey exudate or with pink granulations depending on response to treatment. A great variety of treatments have been used. Infection has been treated by the local and systemic use of antibiotics. Various emollients and bacteriostatic ointments have been applied including vaseline, furacin, chloresin, scarlet red, penicillin, bacitracin, terramycin, aureomycin, and Unna's paste. Hot soaks and warm wet saline dressings, Burow's solution, et cetera, have been used to promote local erythematous reaction and as a bacteriostatic measure.

An analysis of cases reveals that 76% of the burns are incurred by military personnel between the ages of 19 and 22. It is apparent that the youth of the victims accounts for a certain immaturity of judgment which, together with lack of knowledge of oriental customs and other facts peculiar to the locality, contribute to the high incidence in this age group. This weakness should be overcome by indoctrination of personnel when they first arrive in the Far East or before they leave the continental United States. Warning about the yutampo also should be repeated to shipboard personnel before going ashore on liberty, particularly during the cold weather season.

A good program of venereal disease indoctrination should be augmented with such instruction because more time is lost by yutampo victims than by victims of all venereal diseases combined.

(ComServPac Information Bulletin, January 1957)

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Basic Problems of Noise in Industry

In spite of diligent research work, several problems connected with noise are still unsolved. The detrimental effect of noise on workers depends primarily on the intensity and spectrum of the noise, individual susceptibility, and the time of exposure. There are three important degrees in the intensity of noise:

1. When the noise penetrates into the inner ear by bone conduction.
2. Noise impairing hearing.
3. The so-called pain limit.

The possible effects of noise on an individual are:

1. Deterioration of hearing—in the beginning, only ringing in the ears and temporary deterioration of hearing (auditory fatigue), later a permanent hearing defect first localized at 4000 cycles, but extending also into the field of speech. The defect is due to an incurable degeneration of the inner ear.
2. Effect on somatic functions other than hearing.
3. Effect on the nervous system depending not only on the intensity and spectrum of the noise, but also on whether it is continuous and whether the frequency varies in a rapid tempo.
4. Effect on efficiency—activity at the place of work suffers in general only under very intensive noise.

The diagnosis of a hearing defect due to noise is difficult. Personal contact between the patient and the physician is most important. A detailed history of earlier ear diseases and working conditions, careful clinical ear examination, and a complete audiometric examination are necessary.

Medical noise protection includes a detailed initial examination and careful selection of persons who are to work in noise, regular checking of hearing and ears, control by individual ear protectors, and transfer into new jobs of workers who have lost hearing due to working in noise.

Checking of the hearing must be arranged with great care. A correctly equipped place of examination, a well-calibrated audiometer, an experienced and reliable examiner, and a correct interpretation of the examination results are matters of basic importance. Several procedures are possible in an audiometric examination and each includes several potential sources of error which must be taken into account.

During rehabilitation, it is important to explain the nature of the hearing defect to the patient, to find new suitable work, and to arrange for the

acquisition of a hearing aid for him. (Lumio, J. S. (Finland), The Basic Problems of Noise in Industry: Summaries of Papers Presented at the XII International Congress on Occupational Health, Helsinki, Finland, 11: 3, 1-6 July 1957)

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Women at Work

The number of women in industry is continually increasing. Results are given of several surveys on both the capabilities of women and the psychological factors connected with their employment. It is generally agreed that women excel in (1) loyalty, if given loyalty in return; (2) retentive memory and ability to perform repetitive tasks; (3) manual dexterity; and (4) color perception. However, women are not as strong as men; they have more frequent, although shorter, absences; and there is a greater turnover. Women are good security risks, they prefer sedentary work and respect authority.

One survey lists in this order what women want from their jobs: (1) credit for work; (2) promotion on merits; (3) interesting work; (4) salary increases; (5) pleasant working conditions; (6) job security; and (7) advice on personal problems. The list on the basis of what their bosses think they want is in a considerably different order.

Results of the studies are contradictory regarding mechanical ability, temperament, and ease of supervision; easy generalizations should be avoided. The following pointers are given on how women should be handled:

1. Don't tell a woman she is illogical.
2. Praise women more than men.
3. Don't correct her too harshly.
4. Don't yield to a woman's tears.
5. Be careful to appear impartial.
6. Remember that women take things personally.

Good human relations are always essential in industrial management and especially in dealing with women employees. (Industrial Hygiene Digest, 21: 35, August 1957; Siegel, M., Women at Work: Am. Assn. Indust. Nurses J., 4-10, June 1957)

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The printing of this publication was approved by the Director of the Bureau of the Budget, 16 May 1955.

*U. S. GOVERNMENT PRINTING OFFICE : 1957 O - 441835

Health and Work Efficiency

The history of occupational medicine is reviewed briefly, with attention to gradual development of the present concept of the relationship between the health of the employee and his work efficiency.

A constructive health program can effectively bridge the gap between the employee of today and the potential executive of tomorrow if there is a mutual understanding and appreciation of the problem. The doctor in industry plays the neutral role with equal interest in the employer and the employee. Certain individuals who have limitations—which they understand and are willing to live within—make excellent employees. Such employees are better perhaps than many who have no known limitations, but who take on extracurricular activities that may adversely affect their health and well-being.

Inevitably, the scope of the doctor in industry will be more along educational lines and less along curative lines. More and more, he will deal with the normal physiology and psychology of the employee and less and less with his aches and pains. The primary effort will be to keep the fit fit, rather than to try to make the unfit fit. (Industrial Hygiene Digest, 21:8, August 1957; Schneider R. V., Med. Trabajo, 22: 92-100, April 1957)

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